SD11
.P921
1979

PRIEST RIVER EXPERIMENTAL FOREST REPORT

1979

by

Cal Carpenter

Summary

Forestry research gathered record momentum in 1979. New areas were established within various aspects of the Experimental Forest. A nationally known scientist conducted a four-week study during the summer, collecting thousands of insect specimens. Numerous universities, working under cooperative agreement utilized the facilities.

Two fires consumed approximately one acre within the forest. Timber sales ranged from active to inactive. Forest influence data collection was maintained as in the past dating back to 1911. The Priest River Experiment Station continued to provide an ideal site for scientists and technicians involved with research projects. The annual YCC program included 32 enrollees and 14 staff members. A total of 2884 man days were expended during the calendar year. Meetings, group visits, and inspections are noted in the following report.

INTRODUCTION

1979

The resume which follows reveals the activities and progress made during the 68th consecutive year of operation for the Intermountain Forest and Range Experiment Station's Priest River branch. Proposed planning for expansion in forestry research and requests from interested cooperators made it necessary to open new areas within the Experimental Forest.

C.Y. USE PRIEST RIVER EXPERIMENTAL FOREST

C.Y. Use	Man Days
Scientific Research	207
Tours, "Show Me", Related visitations	145
Y.C.C.	2,532
Lab	35
Total	2,919

Lodging Occupancy Including Trailer Pad (24 hr. day)

RESEARCH ACTIVITIES

Timber Management Research

Project 1206 continued to measure permanent growth plots at PREF. During the field season of 1979 sample plots 105-108 in Benton Creek were remeasured by Jonalea Tonn and Russ Graham.

A study unit was established in Canyon Creek as a part of study 606--The physical and physiological response of western redcedar to release. In addition to individual tree measurements and site characteristics, soil and foliage samples were taken to be analyzed for nutrient content. Pre-dawn water potential measurements were also recorded. The field personnel assigned to this task were: Laura Trott and Susan Southerland.

The permanent plots which were established in 1978 for herbicide experiments were revisited by Marilyn Maas and Patrick Evans. No herbicide was applied; however, growth measurements were taken in both the cleared plots and the control plots. In April, Russ Graham, Jonalea Tonn, Jerry Rehfeldt, Pat Wells, and Laura Trott designed and outplanted a Douglas-fir progeny test. The test site had been cleared by Y.C.C. labor. The site is in the south-facing lower Benton clearcut.

Stewart Boren and Mark Thompson remeasured regeneration development plots 51 and 53. These plots were established in 1974. This was the five-year remeasurement.

On June 1, Russ Graham, Stewart Boren, Mark Thompson and Priest Lake District personnel burned the Benton Creek portion of the Ida-Benton timber sale area. Numerous other visitations were made by Russ, checking the Observatory Point timber sale, planting opportunities, and general forest inspections.

Genetics Research

RWU 1451 continued to expand research activities with proposed planning for three new sites, plus numerous additions to the existing studies. With the arrival of spring, personnel including Ray Hoff, Gerald Rehfeldt, Pat Wells, Duane Andrews, and Clarice Armstrong spent major portions of the following months of summer and fall to complete the season's work.

April: Maintenance of existing nursery studies and lifting of 2,000 Douglas-fir seedlings from the nursery and planting on south slopes of Lower Benton clearcut.

May: Three separate maintenance projects within the nursery site and construction of 300 linear feet of additional seedling bed frames for the Tarlac planting site for fall planting of Douglas-fir and larch. All added frames were filled with soil at this time.

June & July: Maintenance and preparation work for establishing new studies.

August: Gathered data on existing lodgepole pine studies established in fall of 1978.

September: Planted 6,000 larch and 4,500 Douglas-fir seedlings in the nursery and Tarlac sites for provenance studies.

Additional responsibilities within RWU 1451 were accomplished by Ray Steinhoff, Dale Coffen, and Duane Andrews.

May: Inspections by Steinhoff to determine freeze damage to grand fir in the nursery and to the white pine in the Ida Creek plantation.

July: Transport and set up system for irrigation of lodgepole pine plantation located in the Arboretum flat; irrigation followed, mid-July.

August: Measured white pine - Upper Benton Creek. Measured grand fir nursery site; collected grand fir twigs for freezing tests.

October: Collected grand fir twigs for additional freezing tests.

Forest Insect Research

A cooperative agreement was made between the INT Station and Dr. Douglas Ferguson, Lead Scientist of the Department of Agriculture's Lepidoptera Research Section, U.S. National Museum. As the result of an invitation by Project Leader, Mal Furniss, RWU 2204, FSL, Moscow, Dr. Ferguson spent 4 weeks on the PREF collecting 3,500 moths which were attracted to ultraviolet lights located at the headquarters station, elevation 2,378, to Gisbourne Lookout tower, elevation 5,900.

This entomological collection was the first compilation of Lepidoptera on the PREF. A twenty-foot trailer was rented by the RWU to provide living quarters for Dr. Ferguson and unit staff during his stay on the forest.

The INT Station and Washington State University cooperated in the continuation of a larch casebearer study. The seasonal activities comprised of a biocontrol survey which refers to an ongoing monitoring program for parasites of LCB (larch casebearer) on permanent plots, including those located on the PREF. This program is supervised and carried out by Garrell E. Long, Assistant Professor, Department of Entomology, Washington State University, his assistant, Azhar B. Ismail, and graduate students. The studies include several aspects of the parasites-LCB-larch tree system.

During the Y.C.C. encampment, the recruits participated in a teaching function and sampling of LCB densities on permanent plots which are also located on the PREF.

Forest Disease Research

Dr. E. F. Wicker and Dr. N. E. Martin collected dwarf mistletoe infections from an inoculation/host range study established in the nursery area of the PREF by Dr. Wicker in 1963. The collections were contributed to the dwarf mistletoe herbarium at Colorado State University, Fort Collins.

Range Management and Wildlife Habitat Research

RWU-1705 spent five days, August 14 to August 16, at the PREF resampling vegetation on permanent transects in three-study area located in Lower Benton Clearcut Blocks A & B. This work was done by a two-man field crew consisting of Peter R. Stickney and John R. Pierce. The remeasurement of the plots on the Experimental Forest are part of a long-term study of forest succession following clearcutting and broadcast burning.

ADMINISTRATIVE ACTIVITIES

Fire Protection

The five firehose cabinets, which are located at strategic points within the PREF headquarter's area, were inspected at regular intervals and found to be in good working condition. Fuel and paint storage facilities were checked and found to be satisfactory in accordance with safety regulations. The use of the "Early Warning" smoke detectors has been partially discontinued due to malfunction and lack of corrective repair.

The fire plan for the Experimental Forest was discussed during the annual cooperative meeting of the INT Station and the Priest Lake Ranger District. The agreement made the previous year regarding parking space for a district pumper truck was reconfirmed but, due to a change in plans, was not utilized.

Fires

On June 6, 1979, at approximately 1700 hours, a broadcast burn blowup, resulting from a fire set of June 1 in a slash area of the Benton portion of the Ida-Benton timber sale consumed a one-acre area in the Benton Creek bottom bordering the sale boundary. The fire was caused by heavy winds. It was a class A fire, located in Section 26, T.58N, R.4W. Discovery was made by Vic Hager. Initial attack was made by Vic Hager, Lyle Cooper, FSL, Moscow, and Cal Carpenter, PREF, followed by Priest Lake District fire crews.

On August 22, at approximately 1200 hours, the Gisborne tower operator reported smoke rising from a location on the PREF, northeast of SD Section 27, T.58N, K.4W near the old full cover inflammability station, due west of the headquarters area. The two lightning-caused fires located within 200 feet apart were under control within a few hours from time of discovery. Initial attack was accomplished by an Idaho State Department of Public Lands employee, (Wilson Godwin) followed by Cal Carpenter, PREF, Wallace Huff, Priest Lake Ranger District, and John Harker, Sandpoint. Mop-up was performed by a district pumper crew.

Forest Roads

In an effort to gain access to the south-facing slope of unit B in the Upper Benton timber sale area for the purpose of early planting, roads 597A, 597B, and 597-L-4 were cleared of ice and snow by dozer blading.

At a later date, those roads were resurfaced and put in top condition by regular forest service equipment and operators from Sandpoint.

Fall maintenance included resurfacing and grading of road 597E. Heavy damage was caused by spring runoff and a heavy rainfall which occurred in late summer. Work was completed September 25, 1979, by forest service equipment and crews from Sandpoint.

Crew members of the Y.C.C. summer encampment participated in a road maintenance project which included brush removal from all area information signs, road designation signs, and snow course markers which are located within PREF.

TIMBER SALES

Observatory Point Timber Sale

The only activity taking place within the Observatory Point Sale area was new road repair where sloughing and settling had occurred, along with minor resurfacing and grading.

Benton Salvage Sale

This sale is located within Section 26, T.58N, R.4W, B.M. bordering the north-northeast boundary of the Benton portion of the original Ida-Benton Sale area. Salvage clearing was necessitated by a blowup fire resulting from a broadcast burn. Sawlogs that were marked or otherwise designated for cutting were estimated at 31 MBF. The high bidder was William VanBelle for the amount of $2,401. The contract was terminated October 31, 1979.

PREF #1 Sale

This sale is located within Section 23, 23 T58N, R4W, and Section 20 and 30 T58N, R3WBM. There are three areas: the north ridge portion will be harvested and generally completed by spring in 1980; the 597-M-2 road and 597 Q-1 road portions will be harvested late in 1980. The three separate areas consist of approximately 3 acres each and are being clearcut for genetic outplantings by RWU-1451. There is an estimated 264 MBF designated for cutting, plus an estimated 20 cunits of cedar products.

Northern Lights Special Use

This sale is located within section 27 and 34, T58N, R4W, and was purchased by Northern Lights, Inc., in order to widen the existing right-of-way for increased electrical transmission needs. A distance of 2.035 miles, 16 to 85.2 feet in width, consisting of 12.128 acres, was included in the area covered on the PREF. The estimated volume was 47 MBF. Completion date within one year from April 30, 1979.

FOREST INFLUENCES

Control Weather Station

Table 1 reveals climatic information taken daily at 1700 hours. These records are continuous and unbroken since 1911. Monthly and weekly reports are provided for the local news media and, upon request, are also provided for other government and state agencies, universities, private industry, public schools, and private individuals.

Table 2 compares current monthly and annual precipitation with 20-year averages for three different stations in the Benton Creek watershed.

Figure 1 shows cumulative precipitation for the 1978-1979 water year and also includes the comparative trends for the wettest year, a 50-year mean, the driest year, and the current year.

Snow Survey

Table 3 summarizes the snow measurements from Benton Spring and Benton Meadow snow courses from January 1, 1979, to the end of the runoff period. Data collections have continued since 1937. Assistance is provided by the Soil Conservation Service, by private contract. The cooperative project was established in 1937.

Table 1.--Control Station monthly precipitation and temperature - 1979 figures in parentheses are 50-year (1912-1961) averages

Month	Precipitation (inches)	Temperature Av. Max. (degrees F.)	Av. Min. (degrees F.)
Jan.	1.10 (4.02)	18.4 (30.3)	8.1 (16.6)
Feb.	6.45 (3.09)	32.8 (36.4)	22.6 (18.3)
Mar.	1.46 (2.65)	46.7 (45.3)	24.7 (23.5)
Apr.	2.05 (2.04)	54.4 (57.6)	29.8 (29.6)
May	2.44 (2.18)	68.2 (66.7)	39.2 (36.6)
June	.72 (2.27)	76.7 (73.5)	45.2 (42.5)
July	1.36 (0.89)	82.3 (83.1)	49.0 (45.5)
Aug.	.84 (0.97)	86.0 (82.0)	49.3 (43.4)
Sept.	.98 (1.67)	77.7 (70.4)	41.7 (37.4)
Oct.	2.81 (2.96)	59.2 (56.6)	35.0 (32.1)
Nov.	1.46 (3.76)	34.2 (39.6)	22.7 (26.7)
Dec.	5.64 (4.37)	36.1 (32.5)	29.3 (21.1)
Annual	27.31 (30.87)	56.0 (56.1)	33.0 (31.0)

Table 2.--Precipitation at three stations on Benton Creek - 1979
figures in parentheses are 20-year (1960-1979) averages

	Control Stn.	Benton Dam	Benton Spring
	- - - - - - - - - - inches - - - - - - - - - - - - -		
January	1.10 (4.19)	1.19 (4.62)	1.40 (4.16)
February	6.45 (2.99)	6.40 (3.08)	7.10 (3.46)
March	1.46 (2.65)	1.38 (2.78)	2.00 (3.51)
April	2.05 (1.96)	1.95 (2.12)	2.60 (2.66)
May	2.44 (2.49)	2.24 (2.57)	3.20 (3.30)
June	.72 (1.84)	.47 (1.93	.80 (2.53)
July	1.36 (1.05)	1.23 (1.08)	1.80 (1.38)
August	.84 (1.55)	.54 (1.69)	1.90 (1.96)
September	.98 (1.51)	.98 (1.52)	.90 (1.72)
October	2.81 (2.21)	2.74 (2.14)	2.40 (2.42)
November	1.46 (4.39)	1.22 (4.40)	1.60 (4.47)
December	5.64 (4.72)	5.11 (4.90)	6.20 (5.30)
Total	27.31 31.55	25.45 32.83	31.90 36.87

Table 3.--Snow depth and water content for Benton Meadow and Benton Spring snow courses. 1979. Figures in parentheses are 25-year average (1937-1961)

	Benton Meadow Elev. 2344 ft.		Benton Spring Elev. 4775 ft	
	inches			
Month	Snow depth	Water content	Snow depth	Water content
Jan. 1	14.9 (12.0)	1.8 (2.7)	21.0 (30.9)	2.8 (8.4)
Feb. 1	22.2 (19.4)	3.5 (4.8)	28.0 (46.8)	5.7 (13.7)
Mar. 1	24.6 (19.3)	6.1 (6.0)	59.6 (55.3)	17.0 (18.4)
Apr. 1	5.8 (06.2)	1.9 (2.3)	43.0 (22.1)	15.5 (20.4)
May 1	00.0 00.0	0.0 0.0	37.9 (34.0)	16.0 (14.8)
June 1	00.0 00.0	0.0 0.0	00.0 00.0	00.0 00.0

COOPERATION

Intermountain Station and Priest Lake Ranger District personnel held their annual cooperative meeting March 13, 1979. The agenda included Y.C.C. and other manpower programs. Other subjects covered were timber sales, planting, thinning, road maintenance, fire plans, the memorandum of understanding, and other miscellaneous items. The district was represented by the following: Ralph Wheeler, Ray Raugutt, Lloyd Rentfro, Larry White, John Knorr, Forrest Lorenz, and Lee Remsburg. Intermountain personnel attending were Russ Graham, FSL, Moscow, and Cal Carpenter, PREF.

HEADQUARTERS IMPROVEMENT AND MAINTENANCE

The regular annual spring maintenance included headquarter's grounds cleanup. Winterized facilities were reopened. Water and sewage systems were reactivated and complete inspections were made on all operational systems.

New construction included installation of a communications system consisting of forest service net radios and intercoms for the administration building, bunkhouse-mess hall, and cottages 1, 2, 3, and 4. Water supply, electrical power, and sewage disposal lines were installed in the "Benton-Hilton" lodging quarters and a trailer parking area located near the old "Tent City" site. Labor to complete the project was provided by RSS and RWU-1206, FSL, Moscow. The equipment for excavating and backfilling was acquired through a rental service. Those participating were: V. Haber, L. Cooper, R. Graham, J. Tonn, and C. Carpenter.

A total of 17 aluminum window-well covers were fabricated by Vic Hager. The new winter weather protectors replace the long-existing wood covers which have been in service more than 20 years.

A. Office Laboratory - The floor in the conference room was refinished, and classroom furniture was removed and replaced with overstuffed type furnishings. Rearranging in the old mail room, biology lab, and silviculture lab was necessary to provide sleeping quarters for Y.C.C. personnel. The office space across from the superintendent's office was donated to Y.C.C. for staff-recruit meetings.

B. Cottage #1 (Lodge) - The appliances in the basement laundry room were rearranged to provide space for added restrooms. Ventilating fans were installed to conform with health code. This project necessitated modification in the plumbing, electrical, and sewage disposal systems. Excessive water flow within the drainage system caused minor problems with backflow in the floor drains. Floor and wall surfaces in the downstairs quarters were repainted. New carpeting was installed in the livingroom, master bedroom, main entry, back entry, hall, stairway, and upper stair landing. A 225-gallon fuel tank was installed for supplementary storage during extended cold weather. New aluminum window-well covers were placed for the winter.

C. Cottage #2 - The exterior trim was repainted and minor electrical and plumbing repair was accomplished. The furnace fuel injector and electrodes were replaced.

D. Cottage #3 - The exterior trim was repainted, and the downstairs quarters were redecorated including floor surfaces. A shower stall was installed in the downstairs bathroom. A new ventilation system provided added comfort to the occupants using the facility. A fuel tank was removed from the basement area and replaced by a larger tank which was placed outside and underground. Window-well covers were placed for the winter.

E. Cottage #4 - All exterior trim on the superintendent's residence, storage shelter, and garage was repainted. A new 80-gallon hot water heater was installed. The supplementary heating system (wood-heater) was replaced with a new stove. A rock hearth and protective wall cover was placed for added safety during winter use. New aluminum window-well covers were placed for protection against winter weather.

F. Bunkhouse-Mess hall - The rearrangement of several appliances made work and serving areas more convenient. The stress of increased Y.C.C. staff and crew members necessitated the changes. New carpeting was installed in the dormitory areas. Two dishwashers were added to the mess area. New heating elements were installed in the #1 water heater. Minor repair was made in the plumbing system.

G. "Benton-Hilton" - This "mobile" building has proved to be as the term suggests. Originally it was set up for use in fire research; later it was moved and served as high elevation shelter for personnel in watershed research. In 1978, it was moved back to the headquarters area for use as living quarters for Y.C.C. staff and crew members. Water, electrical power, sewage disposal system, carpeting, and interior decoration were completed in early spring 1979. Bunks and furniture were added to provide comfortable lodging.

H. Shop - Severe wind occurrence for the second consecutive year loosened roof panels and required attention to repair. The sliding door was repaired.

PERSONNEL

Position	Dates	Name
Superintendent	1/30/65	Cal Carpenter
Maintenance Assistant	1966 to present (Intermittent)	Jane Knoke

Meetings, Group Visits and Inspections

Jan. 30 Russ Graham, Paige Ballard, and Vic Hager arrived at PREF to plan maintenance modifications and season plans pertaining to the Y.C.C. encampment.

Feb. 21 Russ Graham, Paige Ballard, and Vic Hager. Facility inspection preparatory to Y.C.C. encampment.

March 15 Marvin Foiles, Russ Graham, general inspection and conduct job evaluation and performance rating for PREF personnel.

May 25 Richard Mack and the WSU field ecology class of 19 members.

July 9 Carl Stoszek; general tour of the Experimental Forest.

July 16 Baginda Hassin Daud, Nik Nisai, (Malaysia); observe active research in entomology being carried on at the PREF (Larch casebearer).

July 22 Danker raja Melaka, Dr. Hasah Hamdan, and Tassau Daud Sulfan Pahong (Malaysia); observe active research in entomology being carried on at the PREF (Larch casebearer).

July 26 INT Station Director Roger Bay and Mrs. Bay; PREF facility inspection and forest tour.

Aug 6-8 Philip Hartwig, Steve Keirn, Soil Conservation Service, to conduct a soil survey.

Aug. 6 Spokane Community College with R. T. Grotefend, Instructor, Natural Resources, toured the PREF, traveling from headquarters to Gisborne Lookout tower.

Nov. 6 William Beaufait, Robert Sanders, and Marvin Foiles were committee members visiting the PREF to conduct an on-ground inspection and discussion of a silviculture prescription for approval of Russ Graham's re-certification.

Nov. 27. Arthur Brackebusch, Forestry Technician instructor at North Idaho Idaho College, and 16 forestry students spent the day discussing research activities, past and present, and toured present research sites near the headquarters area.

YOUTH CONSERVATION CORP

The seventh consecutive year of operation for the Y.C.C. program at the Priest River Experimental Forest commenced June 24 and terminated August August 16, 1979. The program was sponsored by the U.S. Department Agriculture and operated by the Intermountain Forest and Range Experiment Station. Personnel involved included 14 staff members and 32 enrollees.

Following is the list of names of those who participated in the 1979 program:

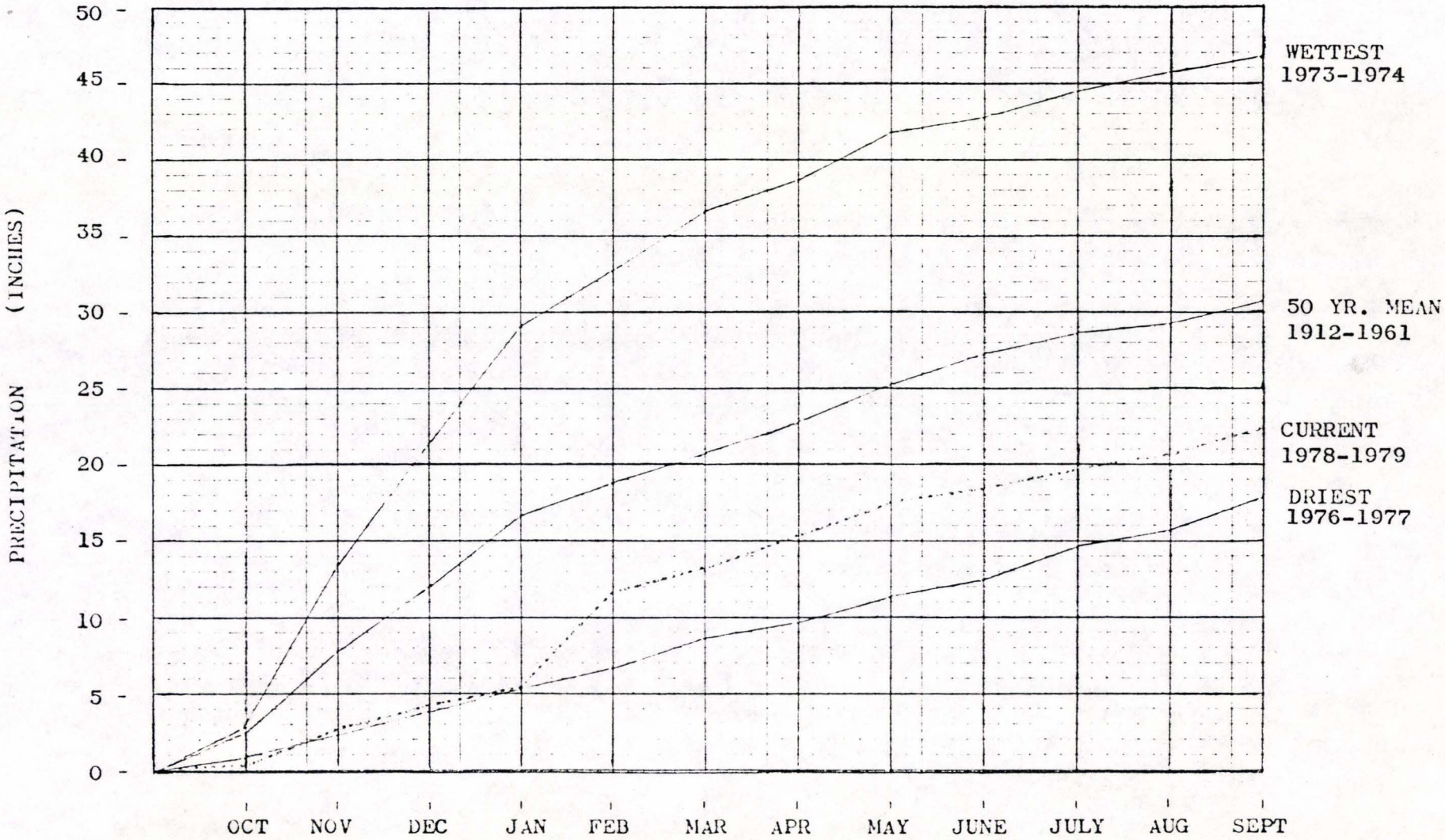
Staff

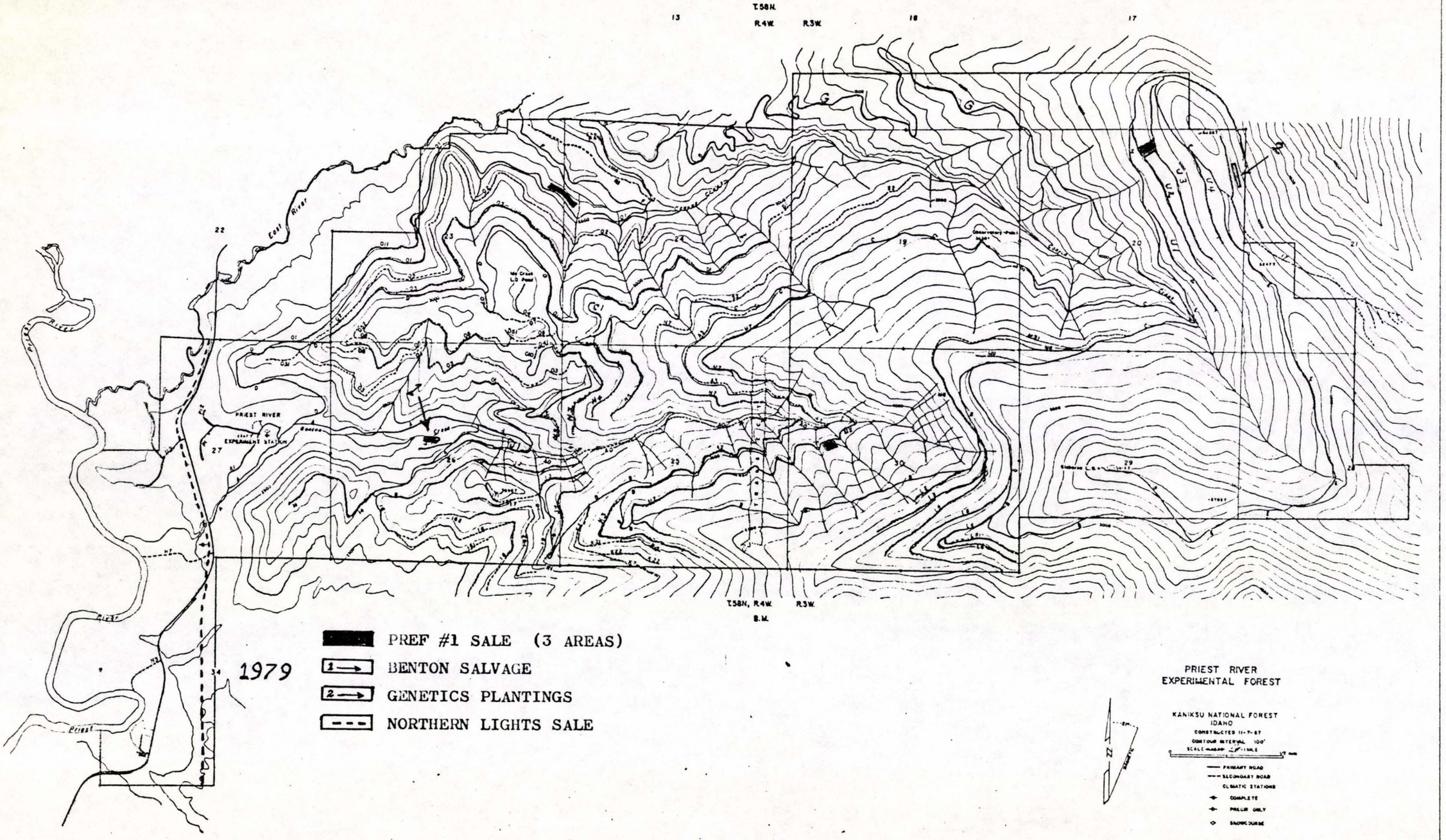
W. Paige Ballard	YCC Program Manager
Robert Weisel	YCC Director
Joyce Grafing	Project Coordinator
Jim Cash	Environmental Awareness Training Tech.
Tom Gillis	Crew Leader
Jim Litch	Crew Leader
Dian Smith	Crew Leader
Deb Strudevent	Crew Leader
Bill Stormont	Recreation Assistant
Jean Peckham	Recreation Assistant
Cora Jean Olson	Cook
Joyce Suttle	Assistant Cook
Darl Worl	Yacc enrollee
Carol Worl	YACC enrollee

Enrollees

Arlen Brown
Penny Bennett
Margaret Brausen
Laura Brissoen
Rene Clark
Lisa Clemons
Brad Davis
Liz Fallis
Troy Fowler
Laura Green
Craig Held
Jeff Holtzer
Ron Hopkins
Lee Hosking
Terri Houde
Christa Hurd
Julie Kudla
Dawn Laws
Michelle Lewis
Bob Merle
Dave Messik
Bill Moncur
Darren Moore
Yvonne Parsels
Dave Phelps
Brian Potter
Darryl Sanders
Lisa Scott
Geoffrey Short
Andy Smith
Julie Solland
Tracy Streib

FIG. 1--CUMULATIVE PRECIPITATION FOR WATER YEAR, OCTOBER THROUGH SEPTEMBER
PRIEST RIVER EXPERIMENTAL FOREST, CONTROL WEATHER STATION




T.58N.
R.4W. R.3W.
13
18
17
East River
PRIEST RIVER
EXPERIMENT STA.
22
27
34
T58N, R4W. R3W.
B.M.
PREF #1 SALE (3 AREAS)
1 BENTON SALVAGE
2 GENETICS PLANTINGS
NORTHERN LIGHTS SALE
1979
PRIEST RIVER
EXPERIMENTAL FOREST
KANIKSU NATIONAL FOREST
IDAHO
CONTOUR INTERVAL 100'
PRIMARY ROAD
SECONDARY ROAD
CLIMATIC STATIONS
COMPLETE
PRECIP ONLY
SNOW COURSE